

**TECHNICAL SPECIFICATION FOR
REPLACEMENT DISPLAY UNIT
USED ON
DDG 51 THRU 82 DDG AND AOE CLASS
MACHINERY CONTROL CONSOLES**

1. INTRODUCTION

- 1.1. This specification establishes requirements for the furnishing of a commercially available Display Unit as a form, fit and function replacement for current DDG Machinery Control Consoles Plasma Display Units, utilizing existing power supply and connections.

2. PANEL DISPLAY DESIGN REQUIREMENTS

- 2.1. The Panel Unit will be used on DDG 51 through 82 and AOE Class Machinery Control Consoles in accordance with the following requirements:
 - a) Commercial Display Unit adapted for the DDG and AOE Class Machinery Control Consoles using techniques and processes available in the commercial marketplace.
 - b) The proposed Display Unit design shall replace an 8 inch X 8 inch AC Plasma Display Unit head assembly that emulates a medium performance CRT type terminal with alpha-graphic capabilities. The proposed Display Unit will utilize existing power and data input cables and meet size and mounting specifications such that the proposed display is a form, fit, function replacement for existing display.
 - c) The Display Unit will be adapted to interface with the existing control system components and will be tested at the Land Based Engineering Station (LBES) platform.
- 2.2. Detailed specifications for current Plasma Display Unit are contained in Lockheed Martin-formerly General Electric-Specification for Plasma Display, 63A141835 Rev P. Existing power supply unit (PSU) and keyboard will be utilized. Specifications for PSU and keyboard are included in above referenced specification; para's 3.28 and 3.29 apply.

3. FIRST ARTICLE TESTING

- 3.1. Testing will be accomplished on the first article delivered to ensure it is an acceptable replacement for current Plasma Display Unit and functions as intended in the DDG/AOE Machinery Controls System (MCS). This testing will be accomplished by both the contractor and Government.
- 3.2. Contractor Testing
 - a) Contractor shall perform Vibration/Shock/EMI Testing on First Article Panel Display Unit in accordance with Sections 3.3.5.3, 3.3.5.4, 3.3.5.8, respectively, of the Lockheed Martin-formerly General Electric-Specification for Plasma Display, 63A141835 Rev P. Contractor shall submit a test report detailing the results of the Vibration/Shock/EMI testing performed. In accordance with above specification.

3.3. Government Testing

- a) Upon completion of the tests by the contractor described in par. 4.2, the contractor shall deliver the First Article Test to the Government. The Government will test First Article in NSWCCD, Phila. test facility. Testing will be accomplished by installing first article in the DDG machinery Control System consoles. NSWCCD will ensure physical mounting in MCS console panels and power supply/data connections are acceptable. In addition, functionality testing will be performed to ensure: keyboard functions verification and display control, visual parameters, display screen characteristics and alphanumeric display. In addition, the Government will perform any other examination or inspection it deems necessary to determine compliance with the specification requirements. The First Article sample will be retained by the Government and shall not be considered one of the production units covered by Item 0001.

4. DOCUMENTATION

- 4.1. The contractor shall provide a commercial Technical Manual detailing operation, maintenance and parts breakdown.
- 4.2. Contractor shall provide software source files and tools required for software developed for replacement display unit.
- 4.3. Contractor shall provide Engineering Data For Provisioning for parts and assemblies to the detail of Level 2 drawings. Drawings will be utilized for provisioning replacement display unit and monitoring obsolescence of components.
- 4.4. First Article Contractor Test Report including Vibration/Shock/EMI Testing Reports.

5. DATA RIGHTS

- 5.1. The Government shall have the right to use, modify, reproduce, release, perform or disclose "technical data" (as defined in clause (a)(14) of DFAR 252.227-7013(NOV 1995)), "commercial computer software" (as defined in clause (a)(1) of DFARS 252.227-7014 (JUNE 1995)) and "noncommercial computer software" (as defined in clause (a)(13) of DFARS 252-227-7014 (JUNE 1995)) developed under this Agreement for Government purposes such as the evaluation, installation, operation, maintenance, repair and modification (but not competitive procurement or manufacture) of the Display Panel.
- 5.2. In addition, the Government shall have unlimited rights in technical data that: are form, fit and function data (as defined in clause (a)(10) of DFARS 252.227-7013 (NOV 1995); are corrections or changes to technical data furnished to the Contractor by the Government; are instructional material; or, the Government has obtained unlimited rights under another Government contract or as a result of negotiations.

5.3. Rights to Commercial Technical Data, Commercial Computer Software, and Commercial Computer Software Documentation Developed Outside of this Agreement

- a) Contractor will ensure that all licenses needed for the use of Commercial Technical Data (CTD), Commercial Computer Software (CCS), and Commercial Computer Software Documentation (CCSD) delivered (but not developed) under this Agreement are supplied to the Government. The Government's rights in CTD incorporated into deliverables under the Agreement shall be determined in accordance with DFARS 252-227-7015, "Technical Data – Commercial Items (Nov 1995)," which is hereby incorporated by reference. The Government shall have the rights specified in the license customarily provided to the public, a copy of which shall be provided to the Government, in all CCS and CCSD incorporated into the deliverable under this Agreement. All such CCS and CCSD software shall be marked with appropriate restrictive markings in accordance with best commercial practices.

6. ENCLOSURE

General Electric Company Specification Control Drawing 63A141835, Revision P, is provided as an enclosure to this Specification.

GENERAL  ELECTRIC

**SIMULATION AND CONTROL
SYSTEMS DEPARTMENT
DAYTONA BEACH, FLORIDA**

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1.0 SCOPE

THIS SPECIFICATION ESTABLISHES THE PERFORMANCE, DESIGN, TEST, AND QUALIFICATION REQUIREMENTS FOR PLASMA DISPLAYS USED IN MILITARY APPLICATIONS.

2.0 APPLICATION DOCUMENTS

THE FOLLOWING DOCUMENTS, OF THE ISSUE IN EFFECT ON THE DATE OF INVITATION FOR BIDS OR REQUEST FOR PROPOSAL, FORM A PART OF THIS SPECIFICATION TO THE EXTENT SPECIFIED HEREIN. IN THE EVENT OF CONFLICT BETWEEN DOCUMENTS REFERENCED HERE AND CONTENTS OF SECTIONS 3, 4, AND 5, THE CONTENTS OF SECTIONS 3, 4, AND 5 SHALL BE CONSIDERED A SUPERSEDING REQUIREMENT.

2.1 GOVERNMENT DOCUMENTS

MILITARY SPECIFICATIONS

MIL-M-7298	MANUALS, TECHNICAL: COMMERCIAL EQUIPMENT
MIL-P-116	PRESERVATION, METHODS OF
MIL-E-16400	ELECTRONIC, INTERIOR COMMUNICATION AND NAVAL SHIP AND SHORE, GENERAL SPECIFICATION FOR
MIL-S-901	SHOCK TESTS, SHIPBOARD MACHINERY, EQUIPMENT AND SYSTEMS, REQUIREMENTS FOR
MIL-C-5015	CONNECTORS, ELECTRICAL, CIRCULAR THREADED, AN TYPE, GENERAL SPECIFICATION FOR
MIL-P-24423	PROPULSION AND AUXILIARY CONTROL CONSOLE AND ASSOCIATED CONTROLS AND INDUSTRIAL EQUIPMENT, NAVAL SHIPBOARD USE, BASIC DESIGN REQUIREMENTS
MIL-C-26482	CONNECTORS, ELECTRICAL (CIRCULAR, MINIATURE, QUICK DISCONNECT, ENVIRONMENT RESISTING), RECEPTACLES AND PLUGS, GENERAL SPECIFICATIONS FOR
MIL-C-83723	CONNECTORS, ELECTRICAL (CIRCULAR, ENVIRONMENT RESISTING), RECEPTACLE (NARROW FLANGE MOUNT, BAYONET COUPLING, CRIMP SOCKET CONTACT), (SERIES 1, CLASS A, G, AND R)
MIL-C-85049	CONNECTOR ACCESSORIES, ELECTRICAL SPECIFICATION FOR

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CONNECTORS, ELECTRICAL, CIRCULAR,
MINIATURE, HIGH DENSITY, QUICK
DISCONNECT, ENVIRONMENTAL RESISTANT,
REMOVABLE CRIMP AND HERMETIC SOLDER
CONTACTS, GENERAL SPECIFICATIONS FOR

MILITARY STANDARDS

MIL-STD-454

STANDARD GENERAL REQUIREMENTS FOR
ELECTRONICS EQUIPMENT

MIL-STD-108

DEFINITIONS OF AND BASIC
REQUIREMENTS FOR ENCLOSURES FOR
ELECTRIC AND ELECTRONIC EQUIPMENT

MIL-STD-461

ELECTROMAGNETIC EMISSION AND
SUSCEPTIBILITY REQUIREMENTS FOR THE
CONTROL OF ELECTROMAGNETIC
INTERFERENCE

MIL-STD-462

ELECTROMAGNETIC INTERFERENCE
CHARACTERISTICS, MEASUREMENT OF

MIL-STD-1397(SH)

INPUT/OUTPUT INTERFACES, STANDARD
DIGITAL DATA, NAVY SYSTEMS

MIL-STD-167-1

MECHANICAL VIBRATION
OF SHIPBOARD EQUIPMENT

MIL-STD-785

RELIABILITY PROGRAM FOR SYSTEMS
AND EQUIPMENT DEVELOPMENT
AND PRODUCTION

MIL-STD-130

IDENTIFICATION MARKING OF U.S.
MILITARY PROPERTY

MIL-STD-882

SYSTEM SAFETY PROGRAM REQUIREMENTS

DOD-STD-1399

INTERFACE STANDARD FOR
SHIPBOARD SYSTEMS

MILITARY HANDBOOKS

MIL-HDBK-217

RELIABILITY PREDICTION FOR
MILITARY EQUIPMENT

MIL-HDBK-472

MAINTAINABILITY PREDICTION

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2.2 NONGOVERNMENT DOCUMENTS

2.2.1 AMERICAN NATIONAL STANDARDS INSTITUTE

X3.4-1977

CODE FOR INFORMATION INTERCHANGE

X3.64-1979

ADDITIONAL CONTROLS FOR USE WITH
THE AMERICAN NATIONAL STANDARD
CODE FOR INFORMATION INTERCHANGE

3.0 REQUIREMENTS

THIS SECTION OF THE PURCHASE SPECIFICATION CONTAINS THE PERFORMANCE, DESIGN, AND CONSTRUCTION REQUIREMENTS FOR A SINGLE PLASMA DISPLAY UNIT AND PROVIDES A MEANS OF TESTING AND VERIFYING PERFORMANCE. THE PLASMA DISPLAY UNIT SHALL MEET ALL THE APPLICABLE REQUIREMENTS AS SPECIFIED IN MIL-E-16400 FOR SHIPBOARD EQUIPMENT. NOTE, HOWEVER, THE PLASMA DISPLAY UNITS WILL BE MOUNTED TO THE MACHINERY CONTROL SYSTEM WHICH IS SUBJECT TO THE REQUIREMENTS SPECIFIED IN MIL-P-24423. THEREFORE, THE PLASMA DISPLAY UNIT SHALL MEET THE REQUIREMENTS SPECIFIED IN MIL-P-24423 WHEN MOUNTED TO THE CONTROL CONSOLES.

3.1 STANDARD EQUIPMENT

THE PLASMA DISPLAY UNIT IS A SELF-CONTAINED ASSEMBLY WHICH PROVIDES THE NECESSARY DRIVE AND DISPLAY ELECTRONICS, AND ALPHANUMERIC CHARACTER GENERATION CAPABILITIES TO PRODUCE IMAGES FORMED BY ARRAYS OF ILLUMINATED DOTS.

THIS UNIT ALSO CONTAINS THE NECESSARY CIRCUITS TO INTERFACE WITH A KEYBOARD AND HOST COMPUTER AS DESCRIBED IN THIS SECTION.

3.2 FUNCTIONAL PERFORMANCE


3.2.1 DISPLAY SCREEN CHARACTERISTICS

3.2.1.1 DISPLAY AREA

THE PLASMA DISPLAY SHALL HAVE A MINIMUM ACTIVE DISPLAY AREA OF 7.9 X 7.9 INCHES.

3.2.1.2 ADDRESSABLE PIXELS

THE PLASMA SHALL BE ORGANIZED AS A 508 X 508 OR 512 X 512 MATRIX FOR A TOTAL OF 258,064 OR 262,144 ADDRESSABLE PIXELS.

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3.2.1.3 PIXEL SPACING

THE PLASMA DISPLAY SHALL HAVE A MINIMUM OF 60 PIXELS PER INCH. THIS IS EQUIVALENT TO MAXIMUM PIXEL SPACING (CENTER TO CENTER) OF 0.0167 INCHES.

3.2.1.4 PIXEL SIZE

THE SIZE OF EACH PIXEL SHALL BE APPROXIMATELY 0.010 INCHES.

3.2.1.5 PIXEL DEFECTS

THE PLASMA DISPLAY SHALL NOT HAVE MORE THAN 0.01% ALLOWABLE RANDOM ELEMENT FAILURES. THIS DOES NOT INCLUDE ELEMENTS COLLOCATED WITH INTERNAL SPACERS IN THE DISPLAY PANEL.

3.2.1.6 DUTY CYCLE

ALL DOTS SHALL BE CAPABLE OF REMAINING LIT INDEFINITELY. THE PANEL SHALL BE CAPABLE OF OPERATING INDEFINITELY WITH 25% OF THE PIXELS LIT.

3.2.2 VISUAL PARAMETERS

3.2.2.1 AREA BRIGHTNESS

THE AREA BRIGHTNESS SHALL MEASURE THE EMITTANCE OF A GROUP OF ACTIVATED DOTS INCLUDING THE UNEXCITED SPACE BETWEEN THE DOTS. AT LEAST 8 DIFFERENT AREAS MUST BE SAMPLED WHICH UNIFORMLY COVER THE ENTIRE DISPLAY SCREEN. THE AVERAGE AREA BRIGHTNESS OF THE PLASMA DISPLAY SHALL BE A MINIMUM OF 3.8 FOOTLAMBERTS (WITH ALL REQUIRED FILTERS INSTALLED). THE DIFFERENCE IN AREA BRIGHTNESS BETWEEN THE BRIGHTEST AND DIMMEST MEASUREMENT DIVIDED BY THE AVERAGE AREA BRIGHTNESS SHALL BE LESS THAN 0.45. THE PLASMA BRIGHTNESS SHALL BE ADJUSTABLE FROM FULL BRIGHTNESS TO APPROXIMATELY ONE FOOT LAMBERT IN A MINIMUM OF 6 STEPS. THE BRIGHTNESS CONTROL SHALL BE VIA TWO "FUNCTION" KEYS LOCATED ON THE KEYBOARD. (SEE FIGURE 6 AND 7) DEPRESSING THE "DSPL BRT ↑" SHALL CAUSE THE DISPLAY TO INCREASE IN INTENSITY BY ONE STEP. DEPRESSING THE "DSPL BRT ↓" SHALL CAUSE THE DISPLAY TO DECREASE IN INTENSITY BY ONE STEP. THE INTENSITY CONTROL CIRCUITRY AND PROGRAMMING SHALL BE COMPLETELY CONTAINED WITHIN THE PLASMA DISPLAY SYSTEM AND SHALL NOT REQUIRE ANY INTERVENTION BY THE HOST COMPUTER. THE KEYBOARD CHARACTERS GENERATED BY THE INTENSITY CONTROL KEYS SHALL NOT BE PASSED ON TO THE HOST COMPUTER AND SHALL NOT INTERFERE WITH THE PASSING OF OTHER KEYBOARD DATA TO THE HOST COMPUTER. THE HOST COMPUTER SHALL

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ALSO BE CAPABLE OF INTENSITY CONTROL BY SENDING THE APPROPRIATE INTENSITY CONTROL CHARACTERS. NO OTHER INTENSITY CONTROLS SHALL BE PROVIDED."

3.2.2.2 CONTRAST RATIO

THE PLASMA DISPLAY CONTRAST RATIO SHALL BE A MINIMUM OF 14:1 IN AMBIENT LIGHT CONDITIONS OF 5 TO 100 FOOTCANDLES.

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3.2.2.3 LIGHT SPECTRUM

WHEN ACTIVATED, EACH PIXEL SHALL EMIT LIGHT IN THE NEON ORANGE SPECTRUM WITH A PREDOMINANT WAVE LENGTH OF 585.2 NANOMETERS (NOMINAL).

3.2.2.4 VIEWING ANGLE

ALL PIXELS LEGIBLE VIEWED AT 1/2 PEAK BRIGHTNESS THROUGH AN ANGLE OF ± 21 DEGREES MINIMUM FROM NORMAL IN THE VERTICAL PLANE, AND ± 19 DEGREES MINIMUM FROM NORMAL IN THE HORIZONTAL PLANE.

3.2.2.5 FLICKER

NONE PERCEPTIBLE

3.2.2.6 LINEARITY

DEVIATION OF ANY VECTOR FROM A "THEORETICAL STRAIGHT LINE" SHALL BE LESS THAN 0.017 INCH ALONG THE LINE LENGTH.

3.2.2.7 DISPLAY SPEED

THE DISPLAY SHALL BE CAPABLE OF TRANSFERRING A COMPLETE PAGE OF ASCII CHARACTERS FROM A FILE BUFFER TO THE SCREEN IN A MAXIMUM OF ONE SECOND.

3.2.2.8 SCREEN ERASE

THE SCREEN SHALL BE CAPABLE OF BEING ERASED IN A MAXIMUM OF 150 MICROSECONDS.

3.2.3 ALPHANUMERIC DISPLAY

3.2.3.1 CHARACTER SIZE

THE PLASMA DISPLAY SHALL UTILIZE A SEVEN COLUMN BY NINE ROW CHARACTER MATRIX WITH ONE DOT BETWEEN CHARACTERS AND SEVEN DOTS BETWEEN LINES. THE DISPLAY SHALL BE CAPABLE OF DISPLAYING A TOTAL OF NINE-SIX UPPERCASE AND LOWERCASE STANDARD ASCII ALPHABETIC, NUMERIC, AND PUNCTUATION CHARACTERS. APPROXIMATE CHARACTER SIZE SHALL BE 0.110 INCH WIDE BY 0.143 INCH HIGH.

3.2.3.2 SPECIAL CHARACTERS

THE SCREEN SHALL BE CAPABLE OF DISPLAYING SIX USER DEFINED SPECIAL CHARACTERS AS SHOWN IN FIGURE 1. THESE CHARACTERS SHALL BE PART OF THE FIRMWARE (I.E.,

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	CHARACTER 1	CHARACTER 2	CHARACTER 3
ROW 1 (TOP)	0000000	0000000	0000000
ROW 2	0000000	0000000	0000000
ROW 3	0000000	0001000	0001000
ROW 4	0000000	0001000	0001000
ROW 5	0000000	0010000	0010100
ROW 6	0000000	0010000	0010100
ROW 7	0000000	0100000	0100010
ROW 8	0000000	0100000	0100010
ROW 9 (BOTTOM)	0111110	0111110	0111110

	CHARACTER 4	CHARACTER 5	CHARACTER 6
ROW 1 (TOP)	0000000	0000000	0000000
ROW 2	0000000	0000000	0000000
ROW 3	0001110	0001110	0011100
ROW 4	0001000	0001000	0010000
ROW 5	0010100	0010111	0101110
ROW 6	0010100	0010100	0101000
ROW 7	0100010	0100010	1000111
ROW 8	0100010	0100010	1000100
ROW 9 (BOTTOM)	0111110	0111110	1111100

NOTE: "1" REPRESENTS A LIT CELL
"0" REPRESENTS AN UNLIT CELL

FIGURE 1. SPECIAL CHARACTERS

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STORIED IN ROM OR PROM SO THAT THE BIT MAP OF THE CHARACTERS ARE NOT LOST WHEN POWER IS REMOVED FROM THE PLASMA DISPLAY UNIT). THESE CHARACTERS SHALL BE DISPLAYED ON THE SCREEN WHEN THE PROPER COMMAND SEQUENCE IS SENT TO THE TERMINAL BY THE HOST DEVICE.

3.2.3.3 CURSOR DISPLAY

THE CURSOR DISPLAY SHALL BE USER SELECTABLE TO BE INVISIBLE OR A BLINKING CURSOR LOCATED IN THE CURRENT CHARACTER DOT MATRIX.

3.2.3.4 DISPLAY CAPACITY

WITH A 7 X 9 CHARACTER FORMAT THERE SHALL BE 63 TO 64 CHARACTERS PER LINE AND 32 LINES FOR A TOTAL OF 2016 TO 2048 CHARACTERS.

3.2.4 DATA TRANSFER

DATA TRANSFER SHALL BE ACCOMPLISHED USING AT LEAST AN 8 BIT PARALLEL I/O PORT. PORT OPERATION AND SIGNAL LEVELS SHALL BE IN ACCORDANCE WITH MIL-STD-1397, CLASSIFICATION TYPE B (NTDS-FAST) COMPUTER TO PERIPHERAL OPERATION. THE NTDS-FAST INTERFACE SHALL BE COMPATIBLE WITH THE AN/UYK-44 (MRP) INPUT/OUTPUT CHANNEL ADAPTER (IOCA) SEM WHICH IS MADE BY SPERRY (F2 IS THE CONTRACT ORDERING DESIGNATION). THE TERMINAL SHALL BE CAPABLE OF ACCEPTING DATA RATES UP TO 150 KILOBYTES PER SECOND.

3.2.5 ASCII CODE SET

THE TERMINAL WILL USE THE AMERICAN NATIONAL STANDARD CODE FOR INFORMATION EXCHANGE (ASCII), 7 BIT AS CONTROLLED BY ANSI X3.4 AND ANSI X3.64 1979.

3.2.6 TERMINAL FUNCTIONS

3.2.6.1 SCROLLING

THE TERMINAL SHALL BE CAPABLE OF SCROLLING THE DISPLAY UP OR DOWN.

3.2.6.2 SPLIT SCREEN

THE TERMINAL SHALL BE CAPABLE OF SPLITTING THE SCREEN INTO TWO INDEPENDENT AREAS. THE TERMINAL SHALL BE CAPABLE OF SCROLLING UP OR DOWN WHILE IN THE SPLIT SCREEN MODE. THE SCROLLING SHALL ONLY OCCUR IN THE ACTIVE DISPLAY AREA DEFINED BY THE HOST DEVICE.

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3.2.6.3 USER PROGRAMMABLE CHARACTERS

THE TERMINAL SHALL BE CAPABLE OF STORING A MINIMUM OF SIXTEEN 8 X 16 USER PROGRAMMABLE SYMBOLS WHICH ARE DOWNLOADED FROM THE HOST DEVICE. THESE SYMBOLS ARE DISPLAYED ON THE SCREEN WHEN THE PROPER COMMAND SEQUENCE IS SENT TO THE TERMINAL BY THE HOST DEVICE.

3.2.6.4 PIXEL BIT MAP ACCESSIBILITY

THE TERMINAL SHALL BE CAPABLE OF ALLOWING THE HOST DEVICE TO CONTROL INDIVIDUAL PIXELS.

3.2.6.5 ROW, COLUMN ADDRESSING

THE TERMINAL SHALL BE CAPABLE OF POSITIONING THE CURSOR WITH THE CHARACTER ROW AND COLUMN IN THE ALPHA MODE.

3.2.6.6 BLINKING

THE TERMINAL SHALL BE CAPABLE OF BLINKING DEFINED SECTIONS OF THE DISPLAY. A MAXIMUM OF 256 CHARACTERS SHALL BE CAPABLE OF BEING BLINKED IN A MAXIMUM OF 16 DIFFERENT BLINKING FIELDS.

3.2.6.7 REVERSE VIDEO

THE TERMINAL SHALL BE CAPABLE OF REVERSE VIDEO WHERE EACH DOT IN THE CHARACTER MATRIX WHICH IS NORMALLY LIT, IS EXTINGUISHED, AND EACH DOT NORMALLY EXTINGUISHED IS LIT, CREATING A DARK CHARACTER ON A BRIGHT BACKGROUND.

3.2.6.8 UNDERLINING

THE TERMINAL SHALL BE CAPABLE OF PLACING AN UNDERLINE SYMBOL ON THE BOTTOM END OF THE FONT FIELD OF ANY DISPLAYABLE CHARACTER.

3.2.6.9 ADDRESSABLE MODE

THE TERMINAL SHALL BE CAPABLE OF POSITIONING THE CURSOR BY ABSOLUTE, RELATIVE, AND INCREMENTAL ADDRESSING.

3.2.6.10 EXTENDED MEMORY

THE DISPLAY UNIT SHALL CONTAIN A MINIMUM OF 64K BYTES OF RANDOM ACCESS MEMORY (RAM) WHICH WILL BE USED BY THE HOST DEVICE TO STORE DATA FILES WHICH IS

GENERAL ELECTRIC SCSD DEPT LOC Daytona Beach		SIZE A	FSCM. NO. 16331	DWG. NO. 63A141835
DRAWN				
ISSUED		SCALE	SHEET	12

PRESENTLY NOT BEING SHOWN ON THE SCREEN. THE DISPLAY UNIT SHALL BE CAPABLE OF CHANGING THE SCREEN TO THE DATA STORED IN THIS MEMORY BY A SEQUENCE OF COMMAND WORDS FROM THE HOST DEVICE WITHIN ONE SECOND.

3.2.6.11 BELL ALARM

THE PLASMA DISPLAY UNIT SHALL CONTAIN A BELL ALARM WHICH IS LOCATED IN THE KEYBOARD OR DISPLAY TERMINAL. THE HOST DEVICE SHALL BE CAPABLE OF TURNING THE BELL ON OR OFF BY SENDING A SEQUENCE OF COMMAND WORDS TO THE PLASMA DISPLAY UNIT. THE VOLUME OF THE BELL ALARM SHALL BE ADJUSTABLE FROM THE KEYBOARD OR DISPLAY HEAD.

3.2.7 PHYSICAL CHARACTERISTICS/DISPLAY TERMINAL

DIMENSIONS:	SEE FIGURE 2 FOR P1 AND FIGURE 2A FOR P4
WEIGHT:	21 POUNDS MAXIMUM
CONSTRUCTION:	ALUMINUM INTERNAL AND EXTERNAL STRUCTURE
PCB TYPE:	ACCORDANCE WITH MIL-P-28809C
KEYBOARD CONNECTOR:	(SEE TABLE 1)
I/O CONNECTOR:	(SEE TABLES 2A AND 2B)

GENERAL ELECTRIC
SCSD DEPT LOC Daytona Beach

SIZE

A

FSCM. NO.

16331

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63A141835

DRAWN

ISSUED

SCALE

SHEET

13

DIST. TO

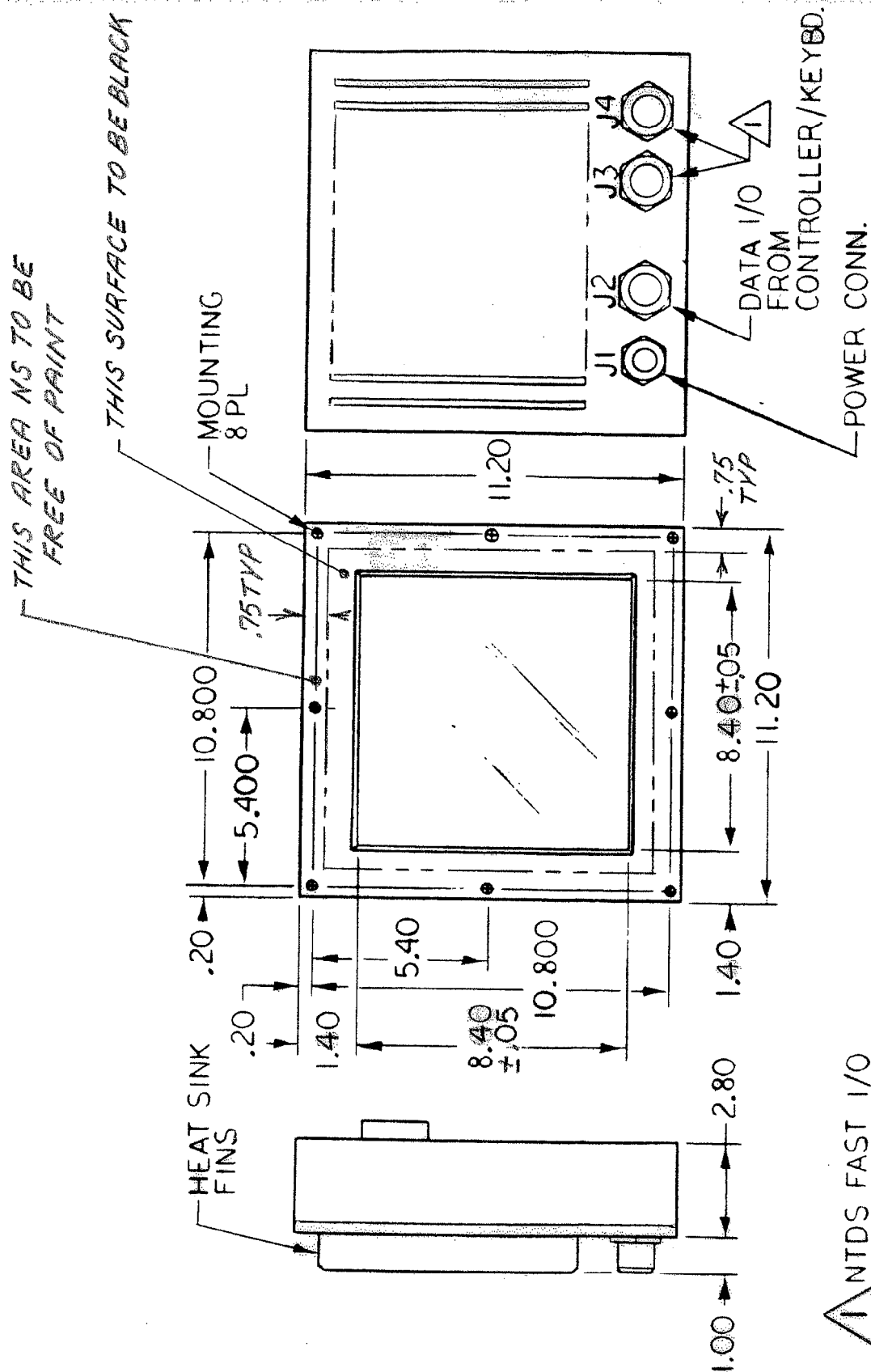
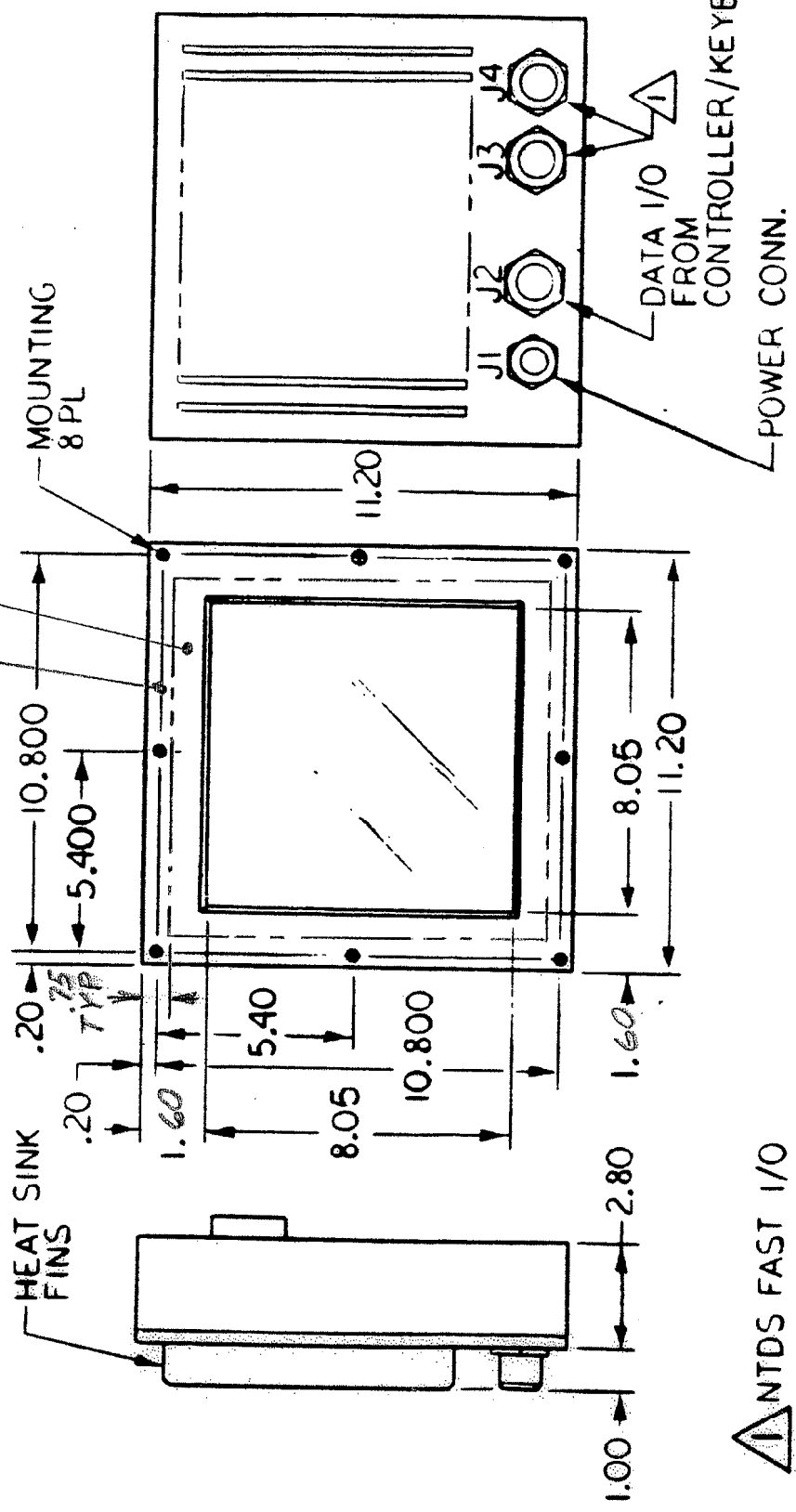


FIGURE 2. DISPLAY UNIT
ALL DIMENSIONS ARE IN INCHES

^ NTDS FAST I/O

THIS AREA NS TO BE FREE OF PAINT
THIS SURFACE TO BE BLACK



NTDS FAST I/O

FIGURE 2A DISPLAY UNIT
ALL DIMENSIONS ARE IN INCHES

GENERAL ELECTRIC		SIZE A	FSCM NO 16331	DWG NO 63A141835
SCS DEPT LOTN DAB				
DRAWN		SCALE		SHEET 14A
ISSUED				

REV 15
SH 15
63A141835
DWG NO
A

TABLE 1. TERMINAL KEYBOARD CONNECTOR (J2) PIN ASSIGNMENT

CONNECTOR PART NUMBER: D38999/44FD35PA MATING CONNECTOR: D38999/46FD35SA		
PIN	NAME	(KEYBOARD) FUNCTION
1	TXDA+	TRANSMIT DATA ON A
2	TXDA-	TRANSMIT DATA ON A
3	RXDA+	RECEIVE DATA ON A
4	RXDA-	RECEIVE DATA ON A
5	CTSA-	CLEAR & SEND ON A
6	CTSA+	CLEAR & SEND ON A
9	DSRA-	DISPLAY RECEIVE
10	DSRA+	DISPLAY RECEIVE
11	DTRA-	DISPLAY TRANSMIT
12	DTRA+	DISPLAY TRANSMIT
13	GND	LOGIC GROUND
14	GND	LOGIC GROUND
16	+5V	POWER
17	+5V	POWER
18	TXDB+	TRANSMIT DATA
19	TXDB-	TRANSMIT DATA
20	RXDB+	RECEIVE DATA ON B
21	RXDB-	RECEIVE DATA ON B
22	CTSB-	CLEAR TO SEND ON B
23	CTSB+	CLEAR TO SEND ON B
24	RSDB-	REQUEST TO SEND
25	RTSB+	REQUEST TO SEND
26	GND	LOGIC GROUND
34	RTSA-	REQUEST TO SEND ON A
35	RTSA+	REQUEST TO SEND ON A
36	SPARE	
37	SPARE	

NOTE:

GENERAL  ELECTRIC
SCSD DEPT LOC Daytona Beach

SIZE FSCM. NO.

DWG. NO.

A

16331

63A141835

DRAWN

ISSUED

SCALE

SHEET

15

DIST. TO

REV H
SH 16
63A141835
DWG NO
SIZE A

TABLE 2A. TERMINAL I/O CONNECTOR PIN ASSIGNMENT (J3)

CONNECTOR PART NUMBER: D38999/44FE35SA MATING CONNECTOR: D38999/46FE35PA			
PIN	FUNCTION	PIN	FUNCTION
1	OD0	28	OD12
2	OD0 RTN	29	OD12 RTN
3	SPARE	30	OD13
4	OD1	31	OD13 RTN
5	OD1 RTN	32	OD14
6	OD2	33	OD14 RTN
7	OD2 RTN	34	OD15
8	OD3	35	OD15 RTN
9	OD3 RTN	36	SPARE
10	OD4	37	SPARE
11	OD4 RTN	38	SPARE
12	OD5	39	SPARE
13	OD5 RTN	40	SPARE
14	OD6	41	EFR RTN
15	OD6 RTN	42	EFA
16	GND	43	EFA RTN
17	OD7	44	SPARE
18	OD7 RTN	45	SPARE
19	OD8	46	GND
20	OD8 RTN	47	IDR
21	OD9	48	IDR RTN
22	OD9 RTN	49	IDA
23	OD10	50	ODA RTN
24	OD10 RTN	51	SPARE
25	SPARE	52	SPARE
26	OD11	53	SPARE
27	OD11 RTN	54	SPARE
		55	SPARE

GENERAL ELECTRIC SCSD DEPT LOC Daytona Beach		SIZE A	PSCM. NO. 16331	DWG. NO. 63A141835
DRAWN				
ISSUED		SCALE	SHEET 16	

DIST. TO

REV 17
 SIZE A
 DWG NO 63A141835

TABLE 2B. TERMINAL I/O CONNECTOR PIN ASSIGNMENT (J4)

CONNECTOR PART NUMBER: D38999/44FE35SB MATING CONNECTOR: D38999/46FE35PB			
PIN	FUNCTION	PIN	FUNCTION
1	ID0	28	ID12
2	ID0 RTN	29	ID12 RTN
3	SPARE	30	ID13
4	ID1	31	ID13 RTN
5	ID1 RTN	32	ID14
6	ID2	33	ID14 RTN
7	ID2 RTN	34	ID15
8	ID3	35	ID15 RTN
9	ID3 RTN	36	SPARE
10	ID4	37	SPARE
11	ID4 RTN	38	SPARE
12	ID5	39	SPARE
13	ID5 RTN	40	EIR
14	ID6	41	EIR RTN
15	ID6 RTN	42	EIE
16	GND	43	EIE RTN
17	ID7	44	SPARE
18	ID7 RTN	45	SPARE
19	ID8	46	GND
20	ID8 RTN	47	IDR
21	ID9	48	IDR RTN
22	ID9 RTN	49	IDA
23	ID10	50	IDA RTN
24	ID10 RTN	51	SPARE
25	SPARE	52	SPARE
26	ID11	53	SPARE
27	ID11 RTN	54	SPARE
		55	8/15 BITS

GENERAL ELECTRIC

SCSD DEPT LOC Daytona Beach

SIZE FSCM NO.

A

16331

DWG. NO.

63A141835

DRAWN

ISSUED

SCALE

SHEET

17

REV M
SH 18
63A141835
DWG NO
SIZE A

3.2.8 POWER SUPPLY

OPERATING VOLTAGES WILL BE SUPPLIED BY A POWER SUPPLY UNIT (PSU).
THE PSU WILL INTERFACE WITH THE DISPLAY UNIT PER FIGURE 3 AND
TABLES 3A AND 3B. THE PSU MATING CONNECTORS SHALL BE SUPPLIED BY BUYER.

3.2.8.1 VOLTAGES

THE OUTPUT FROM THE PSU SHALL BE PER TABLE 4. THE POWER SUPPLY
SHALL HAVE AN ADJUSTABLE RANGE FROM THE SPECIFIED VOLTAGE TO
COMPENSATE FOR DISPLAY AGING.

THE INPUT POWER FOR THE PSU WILL BE SUPPLIED BY GENERAL ELECTRIC.
THIS INPUT VOLTAGE WILL BE 28VDC \pm 3VDC. THE INPUT CURRENT WILL
BE 5 AMPERES MAXIMUM.

3.2.8.2 PHYSICAL CHARACTERISTICS/POWER SUPPLY UNIT

DIMENSIONS:	SEE FIGURE 4
WEIGHT:	11 POUNDS MAXIMUM
CONSTRUCTION:	ALUMINUM INTERNAL AND EXTERNAL STRUCTURE
POWER INPUT CONNECTOR (J1):	SEE TABLE 3A"
POWER OUTPUT CONNECTOR (J2):	SEE TABLE 3B"

GENERAL ELECTRIC
SCS DEPT LCTN DAB

SIZE FSCM NO

A

16331

DWG NO

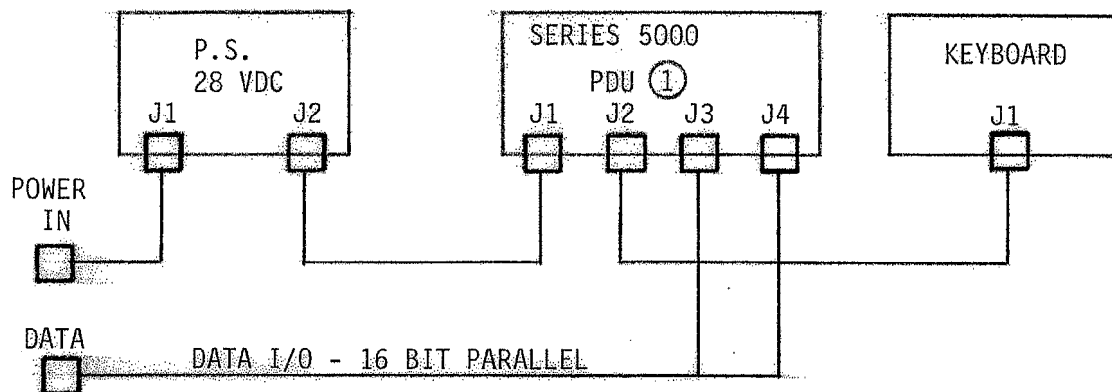
63A141835

DRAWN

ISSUED

SCALE

SHEET 18



① INCLUDES AN NTDS FAST I/O BOARD

FIGURE 3. INTERCONNECT DIAGRAM

GENERAL ELECTRIC SCS DEPT LOC DAB		SIZE A	FSCM. NO. 16331	DWG. NO. 63A141835
DRAWN		SCALE		SHEET 19
ISSUED		DIST. TO		

SIZE A
 DWG NO 63A141835
 SH 20
 REV C

TABLE 3A. POWER INPUT CONNECTOR (J1) PIN ASSIGNMENT

CONNECTOR PART NUMBER: D38999/44FD5PN MATING CONNECTOR: D38999/46FD5SN	
J1 PIN	NAME
A	SPARE
B	SPARE
C	CHASSIS GND
D	28VDC RTN
E	28VDC

TABLE 3B. PSU TO PDH CONNECTOR (J2) PIN ASSIGNMENT

CONNECTOR PART NUMBER: D38999/44FD18SN MATING CONNECTOR: D38999/46FD18PN		
<u>J2</u>		
J2-A	+VSS	+118 TO 128 VOLTS
J2-B	+VSS RTN	
J2-C	+70V	+70 +/- 0.7
J2-D	+70V RTN	
J2-E	+13V	+13 +/- 0.65
J2-F	+13V RTN	
J2-G	SPARE	
J2-H	SPARE	
J2-J	+5V	+5V +/- 0.20
J2-K	+5V RTN	
J2-L	+5V	
J2-M	+5V RTN	
J2-N	-5V	-5V +/- 0.25
J2-P	-5V RTN	
J2-R	+5V SENSE	
J2-S	+5V RTN SENSE	
J2-T	+VSS ADJ	
J2-U	-SFA	

GENERAL ELECTRIC
 SCSD DEPT LOC Daytona Beach

SIZE FSCM. NO.

DWG. NO.

A

16331

63A141835

DRAWN

ISSUED

SCALE

SHEET

20

DIST. TO

SIZE A
DWG. NO 63A141835
SH 21
REV D

TABLE 4. PSU OUTPUT VOLTAGE/CURRENT

VDC	MAXIMUM CURRENT	USE
+5	10 AMPS	LOGIC
+13	0.25 AMPS	LOGIC/SUSTAINER
-5	0.5 AMPS	LOGIC
+70	0.25 AMPS	SUSTAINER
+120	0.20 AMPS	SUSTAINER

GENERAL ELECTRIC
SCSD DEPT LOC Daytona Beach

SIZE FSCM. NO.

DWG. NO.

A

16331

63A141835

DRAWN

ISSUED

SCALE

SHEET

21

DIST. TO

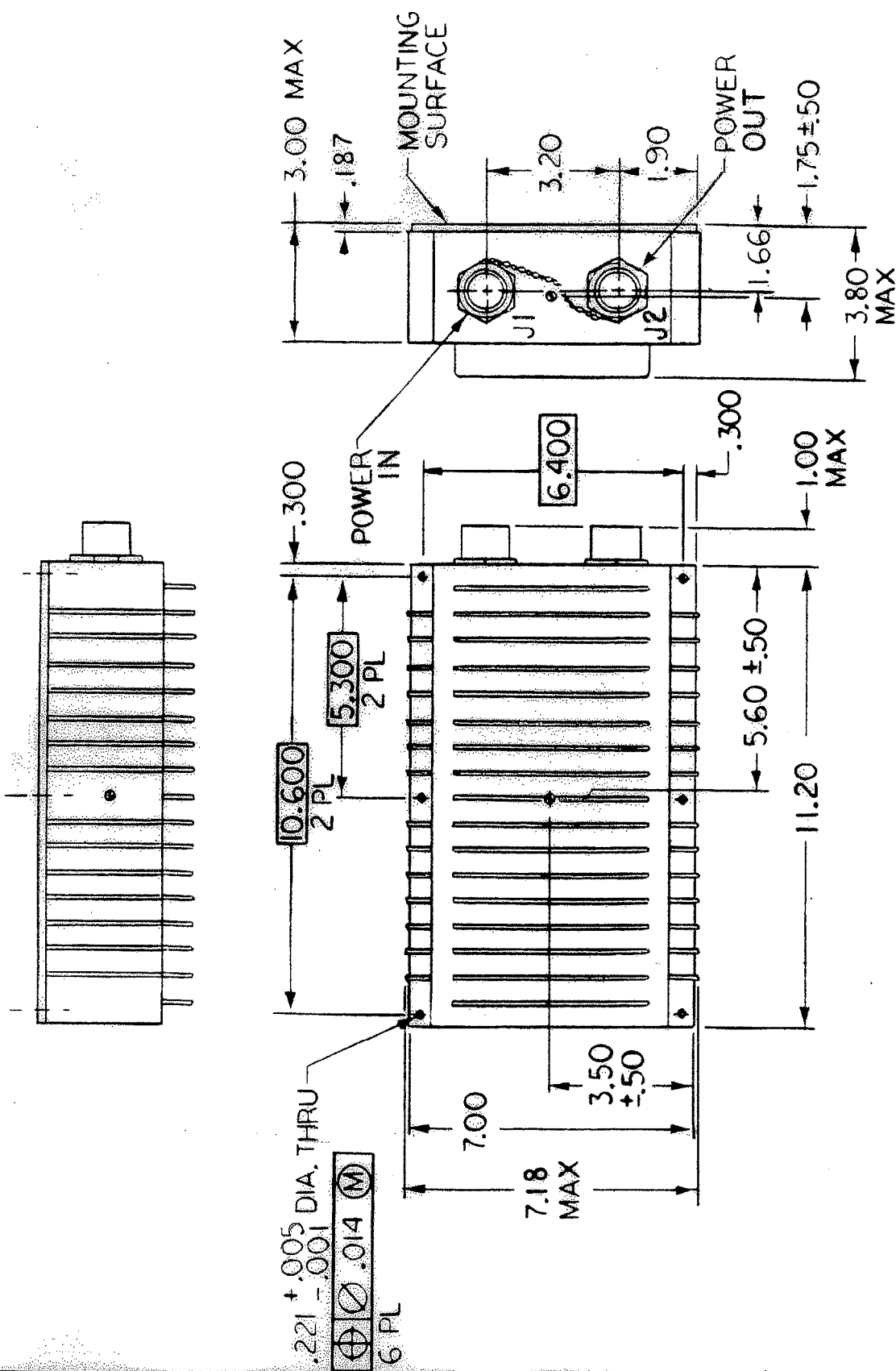


FIGURE 4. POWER SUPPLY UNIT
 ALL DIMENSIONS ARE IN INCHES

GENERAL ELECTRIC SCS DEPT LOC DAB		SIZE A FSCM. NO. 16331	DWG. NO. 63A141835
DRAWN ISSUED		SCALE	SHEET 22

3.2.9 KEYBOARD

THE KEYBOARD SHALL BE DETACHED FROM THE PLASMA DISPLAY TERMINAL AND CONFIGURED AS A STANDARD ALPHANUMERIC KEYBOARD WITH A MINIMUM OF SIX SPECIAL FUNCTION KEYS AND THE TWO DISPLAY DIMMING KEYS. THE KEYSWITCHES SHALL INCLUDE THE STANDARD TYPEWRITER KEYSET, QWERTY, MODE AND EFFECTOR KEYS, PLUS CONTROL KEYS. EACH KEYSWITCH SHALL BE CAPABLE OF GENERATING STANDARD UNSHIFTED AND SHIFTED CHARACTERS, PLUS CONTROL CHARACTERS. THE KEYBOARD SHALL BE SUPPLIED WITH THREADED INSERTS IN THE BOTTOM SURFACE FOR SECURING THE KEYBOARD TO THE CONSOLE SHELF.

3.2.9.1 SPECIAL CHARACTERS

THE KEYBOARD SHALL BE CAPABLE OF ACTIVATING THE SIX SPECIAL CHARACTERS SHOWN IN FIGURE 1, AND THE KEYS SHALL BE MARKED AS SHOWN IN FIGURE 5.

3.2.9.2 KEYBOARD KEY LAYOUT AND MARKING

THE KEYBOARD KEY LAYOUT AND MARKING SHALL BE AS SHOWN IN FIGURE 6.

3.2.9.3 KEYBOARD INTERFACE

THE KEYBOARD INTERFACE SHALL CONSIST OF A PIGTAILED, JACKETED CABLE EXITING FROM THE LEFT SIDE NEAR THE REAR OF THE KEYBOARD CHASSIS APPROXIMATELY ONE INCH ABOVE THE BOTTOM OF THE KEYBOARD. THE PIGTAIL SHALL BE FURNISHED WITH A PLUG AND BACKSHELL HARDWARE PER TABLE 5 AND SHALL BE 36 +/- 3 INCHES LONG. THE PIN ASSIGNMENTS SHALL BE PER TABLE 5.

3.2.9.4 KEYBOARD SLOPE

THE KEYBOARD SHALL BE SLOPED WITH A MINIMUM OF 15 DEGREES AND A MAXIMUM OF 25 DEGREES FROM THE HORIZONTAL. THE PREFERRED SLOPE IS 17 TO 18 DEGREES.

3.2.9.5 KEY SIZE

THE ALPHANUMERIC KEY TACTILE SURFACES SHALL BE CONCAVED (ROUND OR SQUARE). THE DIMENSION ACROSS THE TACTILE SURFACE SHALL BE 0.385 INCH MINIMUM TO 0.75 INCH MAXIMUM (0.5 INCH IS PREFERRED).

3.2.9.6 KEY SPACING

THE KEY SPACING FOR THE ALPHANUMERIC KEYS SHALL BE 0.75 INCH CENTER TO CENTER. THE MINIMUM SEPARATION BETWEEN KEYS SHALL BE 0.25 INCH, MEASURED AT THE TOP SURFACE OF THE KEYS.

GENERAL ELECTRIC SCSD DEPT LOC Daytona Beach		SIZE A	FSCM. NO. 16331	DWG. NO. 63A141835
DRAWN		SCALE		SHEET 23
ISSUED				

3.2.9.7 KEY ACTIVATING RESISTANCE

THE KEY ACTIVATING RESISTANCE SHALL BE A MINIMUM OF 0.9 OUNCE AND A MAXIMUM OF 5.3 OUNCES.

3.2.9.8 KEY DISPLACEMENT

THE KEY DISPLACEMENT FOR CONTACT CLOSURE SHALL BE A MINIMUM OF 0.13 INCH AND A MAXIMUM OF 0.19 INCH.

3.2.9.9 DRIPPROOF CONSTRUCTION

THE KEYBOARD SHALL PERFORM AS SPECIFIED HEREIN WHEN OPERATING WHILE BEING SUBJECT TO THE DRIPPROOF TEST (45 DEGREES) AS SPECIFIED IN MIL-STD-108, PARAGRAPH 4.3.

3.2.9.10 PHYSICAL CHARACTERISTICS/KEYBOARD

DIMENSIONS: SEE FIGURE 7
 WEIGHT: 10 POUNDS MAXIMUM
 CONSTRUCTION: ALUMINUM
 KEYBOARD CONNECTOR: (SEE TABLE 5)

GENERAL ELECTRIC
 SCSD DEPT LOC Daytona Beach

SIZE	FSCM. NO.	DWG. NO.
A	16331	63A141835
ISSUED	SCALE	SHEET 24

— (1)

∠ (2)


△ (3)

△ (4)

△ (5)

△ (6)

FIGURE 5. KEYBOARD MARKING FOR SPECIAL CHARACTERS

GENERAL  ELECTRIC SCS DEPT LOC DAB		SIZE A	FSCM. NO. 16331	DWG. NO. 63A141835
DRAWN		SCALE		SHEET 25
ISSUED				

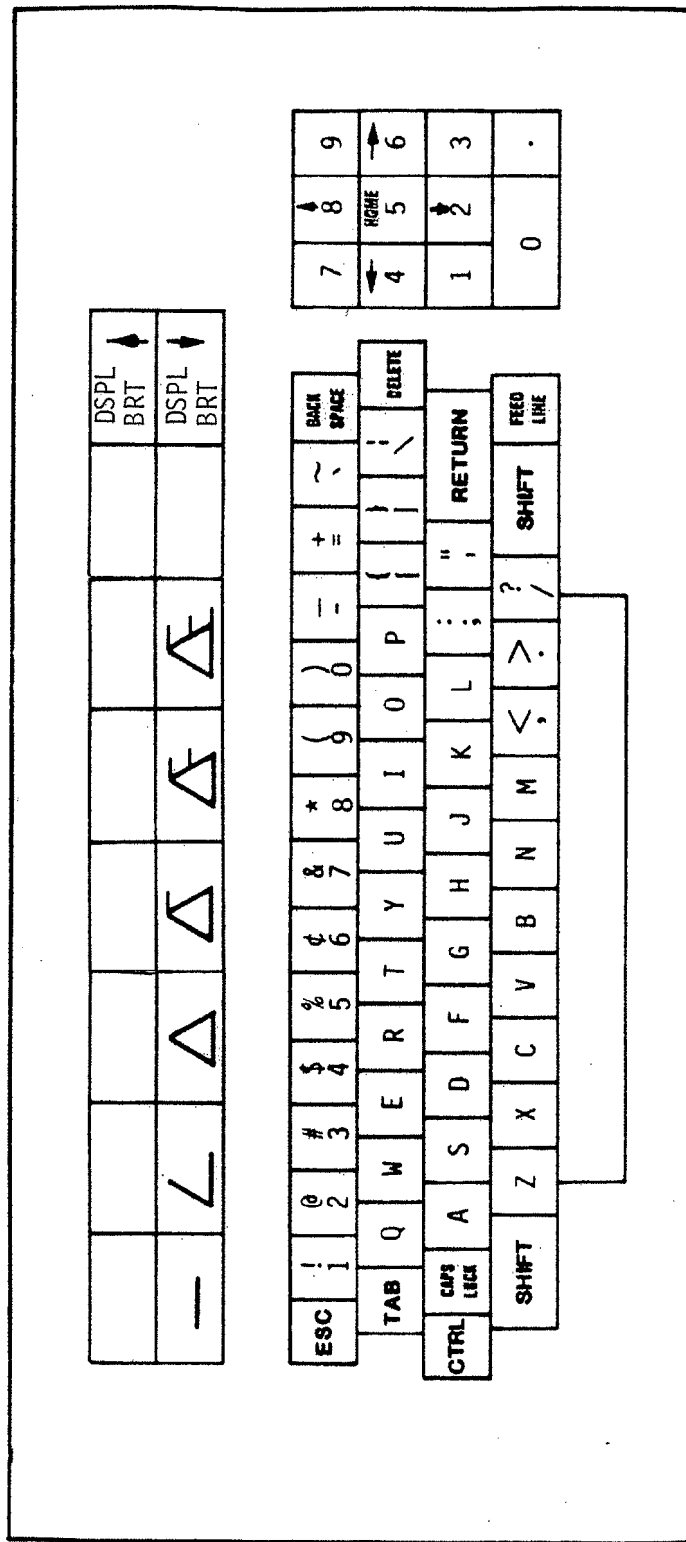


FIGURE 6. KEYBOARD KEY LAYOUT AND MARKING

GENERAL ELECTRIC
SCS DEPT LOC DAB

SIZE A FSCM. NO. 16331

DWG. NO. 63A141835

DRAWN

ISSUED

SCALE

SHEET 26

DIST. TO

TABLE 5. KEYBOARD CONNECTOR PIN ASSIGNMENTS

PIGTAIL PLUG: D38999/46WD35SA WITH M85049/69-15A ADAPTER AND M85049/68-1A11C HEAT SHRINK BOOT MATING RECEPTACLE: D38999/42WD35PA OR D38999/44FD35PA		
PIN	SIGNAL	DESCRIPTION
13	GND	LOGIC RTN
14	GND	CHASSIS GND
16	+5 VDC	POWER
17	+5 VDC	POWER
20	TXDA+	TRANSMIT DATA (KEYBOARD TO DISPLAY) RS422
21	TXDA-	TRANSMIT DATA (KEYBOARD TO DISPLAY) RS422
22	CTS-	RECEIVE DATA (DISPLAY TO KEYBOARD) RS422
		AUDIO ALARM
23	CTS+	RECEIVE DATA (DISPLAY TO KEYBOARD) RS422
		AUDIO ALARM
24	RTS-	ECHO CTS-
25	RTS+	ECHO CTS+
26	GND	LOGIC RTN

NOTE: THE UNUSED PINS IN THIS CONNECTOR ARE NOT SPARES. THIS CONNECTOR MATES WITH J2 ON THE PLASMA HEAD IN SOME APPLICATIONS.

GENERAL ELECTRIC

SCSD DEPT LOC Daytona Beach

SIZE

A

FSCM. NO.

16331

DWG. NO.

63A141835

DRAWN

ISSUED

SCALE

SHEET 27

DIST. TO

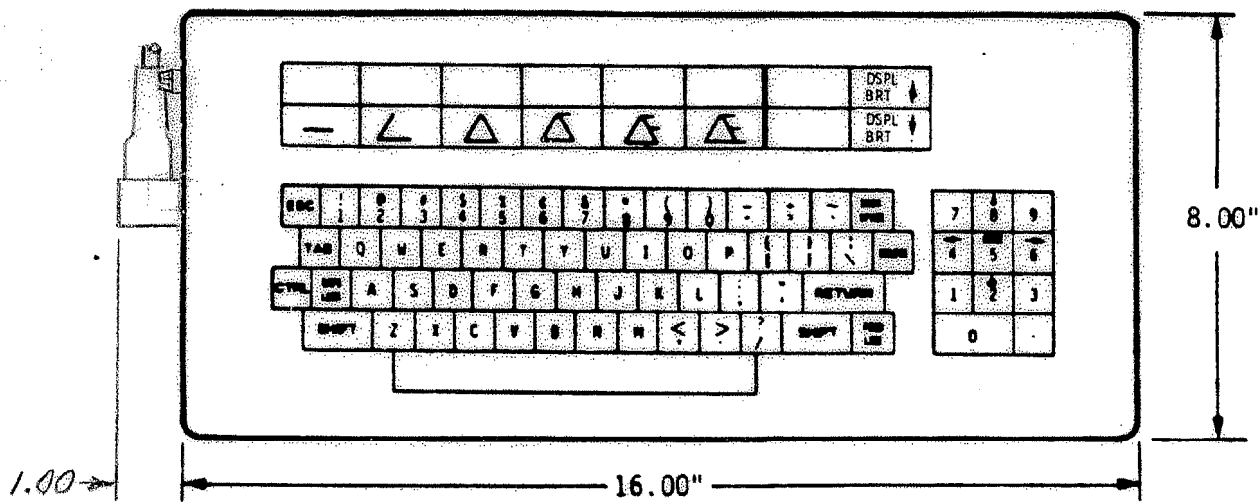
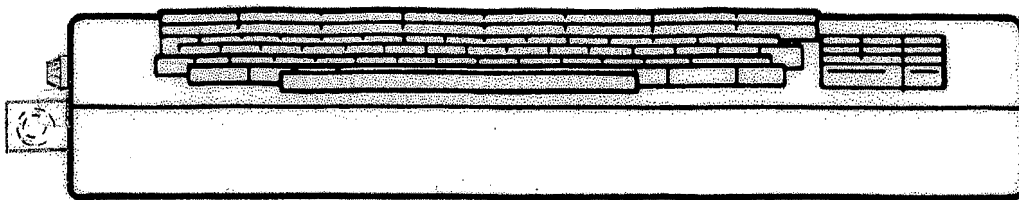
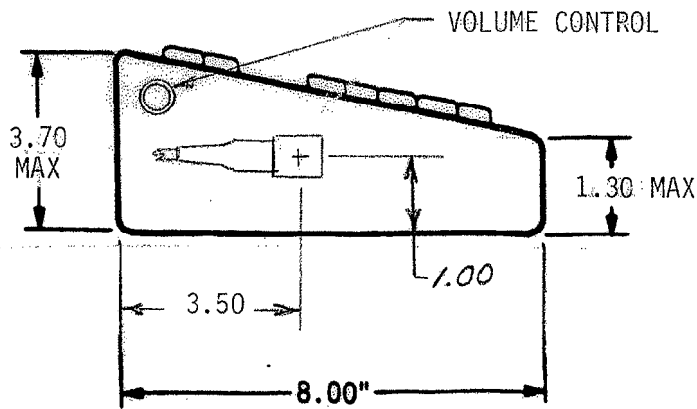


FIGURE 7. KEYBOARD

GENERAL ELECTRIC
SCS DEPT LOC DAB

SIZE
A

FSCM. NO.
16331 v

DWG. NO.
63A141835

DRAWN

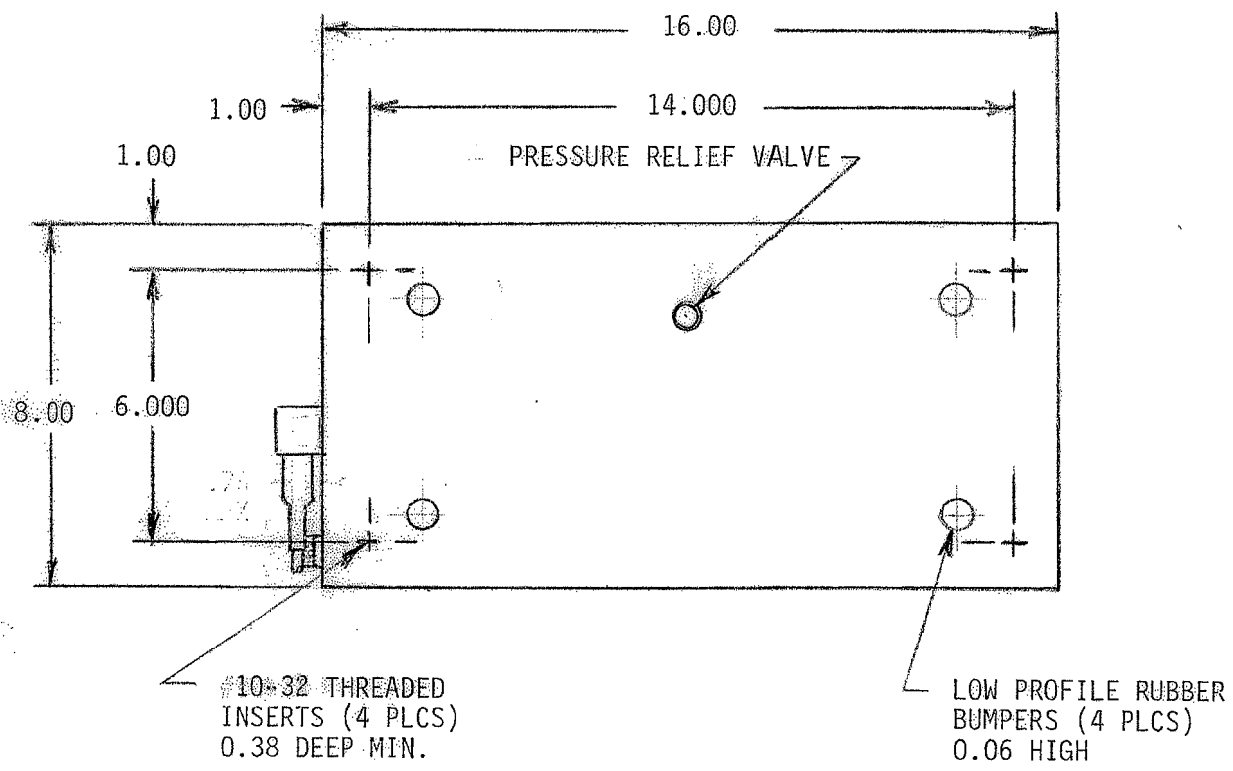
ISSUED

SCALE

SHEET 28

DIST. TO

REV. 28A
 SH
 DWG. NO. 63A141835
 SIZE A



BOTTOM VIEW

GENERAL ELECTRIC
 SCS DEPT LOC DAB

SIZE	FSCM. NO.	DWG. NO.
A	16331	63A141835
SCALE NC		SHEET 28A

DRAWN
 ISSUED

DIST. TO

REV M


SH 29

DWG NO 63A141835

SIZE A

3.2.10 CONNECTORS

ALL CONNECTORS EXCEPT MATING PLUGS SHALL BE PROVIDED BY THE SUPPLIER. BUYER SHALL PROVIDE THE MATING PLUGS AND INTERFACING CABLES. ALL CONNECTORS SHALL BE SELECTED PER MIL-STD-454, REQUIREMENT 10.

	GENERAL ELECTRIC COMPANY		SIZE	CAGE CODE	DWG NO
	SCS	DAB	A	16331	63A141835
DRAWN			SCALE		SHEET 29
ISSUED					

3.3 OPERABILITY

3.3.1 RELIABILITY

THE RELIABILITY OF THE PLASMA DISPLAY ASSEMBLY, AS DEFINED IN MIL-STD-785B, SHALL BE 10,000 HOURS MEAN-TIME BETWEEN FAILURE (MTBF) WHEN OPERATED AT 25 °C IN A NAVY SHELTERED ENVIRONMENT. THE MTBF REQUIREMENT SHALL BE DEMONSTRATED BY ANALYSIS USING FAILURE RATE DATA OF MIL-HDBK-217D FOR ELECTRONIC PARTS. FOR MECHANICAL PARTS, FAILURE RATE DATA MAY BE OBTAINED FROM NPR0-2 "NONELECTRONIC PARTS RELIABILITY DATA" OR OTHER VALID SOURCES. THE EFFECTIVENESS OF THE RELIABILITY PROGRAM SHALL BE MONITORED AND EVALUATED. A FAILED ITEM ANALYSIS REPORT PER MIL-STD-785B TASK 104 WILL BE REQUIRED FROM THE VENDOR TO SUPPORT THIS EFFORT.

3.3.2 USEFUL LIFE

THE USEFUL LIFE OF THE PLASMA DISPLAY UNIT SHALL BE AT LEAST 10 YEARS WITHOUT MAJOR OVERHAUL, NOT INCLUDING REASONABLE SERVICING AND PARTS REPLACEMENT. THE RATED SHELF LIFE OF A PLASMA DISPLAY UNIT SHALL BE IN EXCESS OF 10 YEARS.

3.3.3 MAINTAINABILITY

THE PLASMA DISPLAY UNIT SHALL BE PACKAGED MODULARLY SUCH THAT MODULES/BOARDS ARE EASILY REMOVABLE. NO SPECIAL TOOLS SHALL BE REQUIRED FOR INSERTION OR REMOVAL OF THESE MODULES. THE MEAN ACTIVE MAINTENANCE TIME, AS DEFINED IN MIL-HDBK-472, SHALL BE 30 MINUTES OR LESS. THIS REQUIREMENT SHALL BE DEMONSTRATED BY ANALYSIS. THE ANALYSIS AND RESULTS SHALL BE DESCRIBED IN A FINAL REPORT.

3.3.4 BUILT-IN-TEST

THE PLASMA DISPLAY UNIT SHALL HAVE BUILT-IN-TEST (BIT) FEATURES TO PROVIDE FAULT DETECTION FUNCTIONS WHICH ARE SUFFICIENT TO ALLOW ISOLATION TO THE BOARD LEVEL. THE BIT SHALL HAVE FEATURES TO DETECT KEYBOARD FAULTS. BIT FUNCTIONS SHALL BE EXECUTED UPON POWER-UP OR BY HOST COMMAND. THE BIT STATUS SHALL BE READABLE BY THE HOST. THE HOST DEVICE SHALL RECEIVE INDICATION WHEN THE DISPLAY UNIT HAS COMPLETED BIT TEST AND IS READY TO ACCEPT COMMAND INPUTS FROM THE HOST DEVICE.

3.3.5 ENVIRONMENTAL

THE PLASMA DISPLAY UNIT SHALL NOT BE ADVERSELY AFFECTED BY THE APPLICABLE ENVIRONMENTAL CONDITIONS AS SPECIFIED IN MIL-E-16400 FOR SHIPBOARD EQUIPMENT.

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DRAWN				
ISSUED		SCALE	SHEET	30

3.3.5.1 AMBIENT TEMPERATURE

THE PLASMA DISPLAY UNIT SHALL BE DESIGNED AND CONSTRUCTED TO OPERATE CONTINUOUSLY OVER THE AMBIENT AIR TEMPERATURE OF 0 °C TO 65 °C AT GROUND LEVEL IN ACCORDANCE WITH MIL-E-16400, PARAGRAPH 4.8.3.1 THROUGH 4.8.3.3.

THE PLASMA DISPLAY UNIT SHALL BE DESIGNED AND CONSTRUCTED TO BE STORED FOR EXTENDED PERIODS AT AMBIENT AIR TEMPERATURE BETWEEN -55 °C AND 65 °C IN ACCORDANCE WITH MIL-E-16400, PARAGRAPH 4.8.3.1 THROUGH 4.8.3.3.

3.3.5.2 RELATIVE HUMIDITY

THE PLASMA DISPLAY UNIT SHALL BE DESIGNED AND CONSTRUCTED TO OPERATE CONTINUOUSLY IN AN ATMOSPHERE HAVING RELATIVE HUMIDITY UP TO 100 PERCENT INCLUDING CONDENSATION IN AND ON THE EQUIPMENT, IN ACCORDANCE WITH MIL-E-16400, PARAGRAPH 4.8.3.4.

3.3.5.3 VIBRATION

THE PLASMA DISPLAY UNIT SHALL BE DESIGNED AND CONSTRUCTED TO OPERATE IN THE PRESENCE OF TYPE I VIBRATION AS SPECIFIED IN MIL-STD-167-1 WITH A MAXIMUM EXCITATION FREQUENCY OF 33 HZ.

3.3.5.4 SHOCK

THE PLASMA DISPLAY UNIT SHALL BE DESIGNED AND CONSTRUCTED TO OPERATE IN THE PRESENCE OF GRADE A, CLASS I, HIGH IMPACT SHOCK IN ACCORDANCE WITH MIL-S-901C.

3.3.5.5 SALT FOG

THE PLASMA DISPLAY UNIT SHALL BE DESIGNED AND CONSTRUCTED TO OPERATE IN AN ATMOSPHERE CONTAINING 5 +1 PERCENT SALT SOLUTION AT A RELATIVE HUMIDITY OF 85 PERCENT, IN ACCORDANCE TO MIL-E-16400, PARAGRAPH 4.8.3.5.2.

3.3.5.6 FUNGUS

THE PLASMA DISPLAY UNIT SHALL NOT CONTAIN FUNGUS NUTRIENT SO THAT FUNGUS GROWTH IS NOT POSSIBLE IN ANY ENVIRONMENTAL CONDITIONS.

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DRAWN

ISSUED

SCALE

SHEET

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DIST. TO

3.3.5.7 MERCURY

THE PLASMA DISPLAY UNIT SHALL NOT CONTAIN MERCURY OR MERCURY COMPOUNDS, AND SHALL NOT COME IN DIRECT CONTACT WITH MERCURY, MERCURY COMPOUNDS, OR MERCURY CONTAINING DEVICES DURING MANUFACTURING, INSPECTION, OR TEST.

3.3.5.8 ELECTROMAGNETIC EMISSIONS AND SUSCEPTIBILITY

THE PLASMA DISPLAY UNIT SHALL MEET THE REQUIREMENTS OF MIL-STD-461B, CLASS A4 EQUIPMENT, IN ACCORDANCE WITH THE APPLICABLE PROCEDURES IN MIL-STD-462 WITH THE FOLLOWING EXCEPTIONS. THE RS03 LEVEL SPECIFIED IN MIL-STD-461B, PART 5, PARAGRAPH 18.2, SHALL BE 25 VOLTS/METER FROM 14 KHZ TO 10 GHZ AND THE RE01 LIMITS FOR THE POWER SUPPLY SHALL BE RELAXED TO 30 DB OVER THE SPECIFICATION LIMITS AT THE SWITCHING FREQUENCY AND SWITCHING FREQUENCY HARMONICS.

3.4 DESIGN AND CONSTRUCTION

3.4.1 MATERIALS, PROCESS AND PARTS

ALL PARTS SHALL BE IN ACCORDANCE TO MIL-E-16400, PARAGRAPH 3.4. SINTERED SLUG, WET ELECTROLYTIC TANTALUM CAPACITORS SHALL NOT BE USED.

3.4.1.1 OFF-THE-SHELF EQUIPMENT

COMPONENT PARTS OF UNMODIFIED OFF-THE-SHELF EQUIPMENT, DEFINED AS EXISTING DESIGNED EQUIPMENT READILY AVAILABLE FOR SALE TO THE GENERAL PUBLIC, ARE EXEMPT FROM PARTS CONTROL. HOWEVER, PARTS USED TO ADAPT THE EXISTING DESIGN TO MEET THE REQUIREMENTS OF THIS SPECIFICATION ARE SUBJECT TO PARTS CONTROL AND SHALL BE SUBMITTED TO THE BUYER FOR APPROVAL WITH JUSTIFICATION FOR THEIR USE. THIS EXEMPTION OF PARTS SHALL NOT RELIEVE THE SUPPLIER FROM COMPLIANCE WITH ANY OTHER REQUIREMENT OF THIS SPECIFICATION.

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3.4.2 IDENTIFICATION AND MARKING

THE DISPLAY UNIT, POWER SUPPLY(S), AND KEYBOARD SHALL BE IDENTIFIED WITH VENDOR NUMBER, GENERAL ELECTRIC NUMBER 63A141835 AND APPLICABLE PART NUMBER, AND VENDOR SERIAL NUMBER. THE POWER SUPPLY SHALL ALSO CONTAIN A NAMEPLATE IDENTIFYING INPUT/OUTPUT RATINGS. ALL MARKINGS SHALL BE IN ACCORDANCE WITH MIL-STD-130.

3.4.3 WORKMANSHIP

WORKMANSHIP SHALL COMPLY WITH MIL-STD-454, REQUIREMENT 9.

3.4.4 INTERCHANGEABILITY

INTERCHANGEABILITY SHALL COMPLY WITH MIL-E-16400, PARAGRAPH 3.4.7.

3.4.5 SAFETY

THE DESIGN AND CONSTRUCTION OF THE PLASMA DISPLAY UNIT SHALL CONFORM TO MIL-SRD-454, REQUIREMENT 1. THE PLASMA DISPLAY SHALL BE FREE OF CONDITIONS THAT CAN CAUSE ACCIDENTAL INJURY OR DEATH TO PERSONNEL, OR DAMAGE TO OR LOSS OF THE EQUIPMENT. AS A

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MINIMUM THE FOLLOWING CRITERIA SHOULD BE USED TO ENSURE THAT SAFETY REQUIREMENTS IS SATISFIED.

- A. DESIGN MINIMIZES THE POSSIBILITY OF FAILURES WHICH COULD PRESENT A CRITICAL OR CATASTROPHIC HAZARDOUS CONDITION, AS DEFINED IN MIL-STD-882.
- B. DESIGN IS SUCH THAT ACCESS DURING OPERATIONS, MAINTENANCE, REPAIR OR ADJUSTMENT MINIMIZES PERSONNEL EXPOSURE TO HAZARDS SUCH AS HIGH VOLTAGE, CUTTING EDGES, SHARP POINTS, OR HAZARDOUS MATERIALS.
- C. SUITABLE WARNINGS AND CAUTION STATEMENTS ARE INCLUDED IN OPERATIONS, MAINTENANCE, AND REPAIR INSTRUCTIONS.
- D. DESIGN SHALL PROVIDE FOR WARNING AND CAUTION LABELS AS REQUIRED FOR PERSONNEL AND EQUIPMENT PROTECTION.

3.5 DOCUMENTATION

TECHNICAL MANUALS SHALL BE PROVIDED THAT MEET THE REQUIREMENTS SPECIFIED IN MIL-M-7298C, MILITARY SPECIFICATION, MANUALS, TECHNICAL, COMMERCIAL EQUIPMENT, WITH AMENDMENT 2 DATED 15 APRIL 1975. A REPRODUCIBLE CAMERA-READY COPY AND TWO REVIEW COPIES SHALL BE PROVIDED AS EARLY AS POSSIBLE AFTER RECEIPT OF ORDER BUT NOT LATER THAN THE DATE OF THE DELIVERY OF THE FIRST UNIT. A COPYRIGHT RELEASE AUTHORIZING REPRODUCTION OF THE TECHNICAL MANUAL BY GENERAL ELECTRIC AND THE GOVERNMENT SHALL BE FORWARDED WITH THE CAMERA-READY COPY.

4.0 ACCEPTANCE REQUIREMENTS


4.1 QUALIFICATION TESTS

QUALIFICATION TESTS SHALL BE PERFORMED FOR FORMAL DEMONSTRATION OF PERFORMANCE AND DESIGN ADEQUACY ON THE FIRST ARTICLE TO VERIFY DESIGN FOR THOSE REQUIREMENTS OF SECTION 3 IDENTIFIED IN TABLE 6.

FORMAL QUALIFICATION TESTING OF THE FIRST ARTICLE SHALL NOT BE REQUIRED IF THE SUPPLIER CAN PROVIDE DATA IN THE FORM PREVIOUS QUALIFICATION TESTS, ANALYSIS, AND SIMILARITY TO PREVIOUSLY TESTED EQUIPMENT WHICH PROVES TO THE SATISFACTION OF THE BUYER THAT THE EQUIPMENT MEETS THE REQUIREMENTS OF THIS SPECIFICATION. WHERE THE SUPPLIER CANNOT PROVIDE SUFFICIENT OR ACCEPTABLE DOCUMENTATION FOR A PARTICULAR REQUIREMENT OR REQUIREMENTS, TEST(S) OF THOSE REQUIREMENTS SHALL BE PERFORMED.

4.2 INSPECTIONS

INSPECTIONS SHALL BE PERFORMED ON THE FIRST ARTICLE AND SUBSEQUENT PRODUCTION TO VERIFY GENERAL DESIGN FEATURES, WORKMANSHIP, MATERIALS, PARTS, PROCESSES, IDENTIFICATION, AND MARKING AS IDENTIFIED IN TABLE 6.

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4.3 ANALYSIS

ANALYSIS SHALL BE PERFORMED TO VERIFY THOSE REQUIREMENTS OF SECTION 3 AS IDENTIFIED IN TABLE 6.

4.4 TESTS

TEST SHALL BE PERFORMED AND DATA RECORDED FOR ALL PRODUCTION ITEMS FOR THOSE SECTION 3 REQUIREMENTS IDENTIFIED IN TABLE 6.

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4.5 REJECTION

THE FOLLOWING SHALL BE CAUSE FOR REJECTION OF THE EQUIPMENT PRESENTED FOR INSPECTION:

- A. FAILURE TO MEET THE REQUIREMENTS OF PARAGRAPH 3.0 OF THIS SPECIFICATION.
- B. FAILURE TO COMPLY WITH THE SUPPLIER'S APPROVED QUALITY SYSTEM AND WORKMANSHIP PROCEDURES.
- C. FAILURE TO PROVIDE THE DOCUMENTATION SPECIFIED IN THIS DOCUMENT.
- D. FAILURE TO MEET THE REQUIREMENTS OF PARAGRAPH 4.1, 4.2, 4.3 AND 4.4 OF THIS SPECIFICATION.

4.6 TEST DATA

THE SUPPLIER SHALL PROVIDE ONE COPY OF ALL TEST DATA AT ACCEPTANCE.

4.7 CONFIGURATION MANAGEMENT

THE SUPPLIER SHALL PROVIDE GE/SCSD WITH INFORMATION REGARDING ANY CHANGES EFFECTING THE FORM, FIT, OR FUNCTION OF THE HARDWARE BEING PROVIDED BY THE SUPPLIER IN SUPPORT OF THIS SPECIFICATION.

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TABLE 6. ACCEPTANCE REQUIREMENTS

PARA NO.	TITLE	QUALIFICATION TEST	TEST	INSPECTION	ANALYSIS	NOT APPLICABLE
3.2.1.1	DISPLAY AREA	X				
3.2.1.2	ADDRESSABLE PIXELS	X				
3.2.1.3	PIXEL SPACING	X				
3.2.1.4	PIXEL SIZE	X				
3.2.1.5	PIXEL DEFECTS			X		
3.2.1.6	DUTY CYCLE				X	
3.2.2.1	BRIGHTNESS	X				
3.2.2.2	CONTRAST RATIO	X				
3.2.2.3	LIGHT SPECTRUM	X				
3.2.2.4	VIEWING ANGLE	X				
3.2.2.5	FLICKER	X		X		
3.2.2.6	LINEARITY	X				
3.2.2.7	DISPLAY SPEED	X				
3.2.2.8	SCREEN ERASE	X				
3.2.3.1	CHARACTER SIZE	X				
3.2.3.2	SPECIAL CHARACTERS	X	X			
3.2.3.3	CURSOR DISPLAY	X	X			
3.2.3.4	DISPLAY CAPACITY	X				
3.2.4	DATA TRANSFER	X				
3.2.5	ASCII CODE SET	X				
3.2.6.1	SCROLLING	X	X			
3.2.6.2	SPLIT SCREEN	X	X			
3.2.6.3	USER PROGRAMMABLE CHARACTERS	X	X			
3.2.6.4	PIXEL BIT MAP ACCESSIBILITY	X	X			
3.2.6.5	ROW, COLUMN ADDRESSING	X	X			
3.2.6.6	BLINKING	X	X			
3.2.6.7	REVERSE VIDEO	X	X			
3.2.6.8	UNDERLINING	X	X			
3.2.6.9	ADDRESSABLE MODES	X				
3.2.6.10	EXTENDED MEMORY	X	X			
3.2.6.11	BELL ALARM	X	X			
3.2.7	PHYSICAL CHARACTERISTICS/DIS TER.	X				
3.2.8.1	VOLTAGES	X				
3.2.8.2	PHYSICAL CHARACTERISTICS/PSU	X				

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TABLE 6. ACCEPTANCE REQUIREMENTS (CONTINUED)

PARA NO.	TITLE	QUALIFICATION TEST	TEST	INSPECTION	ANALYSIS	NOT APPLICABLE
3.2.9.1	SPECIAL CHARACTERS (MARKING ONLY)	X		X		
3.2.9.2	KEYBOARD KEY LAYOUT AND MARKING			X		
3.2.9.3	KEYBOARD CONNECTOR			X		
3.2.9.4	KEYBOARD SLOPE	X				
3.2.9.5	KEY SIZE	X				
3.2.9.6	KEY SPACING	X				
3.2.9.7	KEY ACTIVATING RESISTANCE	X				
3.2.9.8	KEY DISPLACEMENT	X				
3.2.9.9	DRIPPROOF CONSTRUCTION	X				
3.2.9.10	PHYSICAL CHARACTERISTICS/KEYBOARD	X				
3.2.10	CONNECTORS	X		X		
3.3.1	RELIABILITY				X	
3.3.2	USEFUL LIFE				X	
3.3.3	MAINTAINABILITY				X	
3.3.4	BUILT-IN-TEST	X	X			
3.3.5.1	AMBIENT TEMPERATURE	X				
3.3.5.2	RELATIVE HUMIDITY	X				
3.3.5.3	VIBRATION	X				
3.3.5.4	SHOCK	X				
3.3.5.5	SALT FOG	X				
3.3.5.6	FUNGUS				X	
3.3.5.7	MERCURY				X	
3.3.5.8	ELECTROMAGNETIC EMISSIONS AND SUS.	X				
3.4.1	MATERIALS, PROCESS AND PARTS			X		
3.4.2	IDENTIFICATION AND MARKING			X		
3.4.3	WORKMANSHIP			X		
3.4.4	INTERCHANGEABILITY				X	
3.4.5	SAFETY			X		
3.5	DOCUMENTATION			X		

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5.0 PREPARATION FOR DELIVERY

THE PLASMA DISPLAY UNIT SHALL BE PRESERVED AND PACKAGED IN ACCORDANCE WITH MIL-P-116, LEVEL III REQUIREMENTS.

6.0 CONFIGURATION DETAILS

THE PLASMA DISPLAY UNIT SHALL INCLUDE ONE PLASMA DISPLAY TERMINAL, A POWER SUPPLY UNIT, A KEYBOARD, AND THE NECESSARY CIRCUITRY TO PROVIDE THE REQUIREMENTS AS SPECIFIED IN SECTIONS 3, 4, and 5.

PART NUMBER	DESCRIPTION	FIG NO
P1	PLASMA DISPLAY TERMINAL	2
P2	PLASMA DISPLAY POWER SUPPLY	4
P3	PLASMA DISPLAY KEYBOARD	7
P4	PLASMA DISPLAY TERMINAL	2A

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7.0 NOTES

NOT APPLICABLE

8.0 SUGGESTED SOURCES (SEE TABLE 7)

IDENTIFICATION OF THE "SUGGESTED SOURCE(S) OF SUPPLY" HEREON IS NOT TO BE CONSTRUED AS A GUARANTEE OF PRESENT OR CONTINUED AVAILABILITY AS A SOURCE OF SUPPLY FOR THE ITEM(S).

TABLE 7. SUGGESTED SOURCES

PART NO.	VENDOR	VENDOR
P1	SAI	
P2	SAI	
P3	SAI	
P4	SAI	

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18. ESTIMATED TOTAL PRICE	
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CONTRACT DATA REQUIREMENTS LIST (CDRL)

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington DC 20503. Please **DO NOT RETURN** your form to either of these addresses. Send completed form to the government issuing Contracting Officer for the Contract/PR No. in Block E.

A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CDRL

A. CONTRACT LINE ITEM NO. 0008	B. EXHIBIT	C. CATEGORY: TDP _____ TM _____ OTHER _____
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D. SYSTEM/ITEM CONSOLE DISPLAY UNIT	E. CONTRACT/PR NO.	F. CONTRACTOR
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1. DATA ITEM NO. A002	2. TITLE OF DATA ITEM COMMERCIAL OFF-THE-SHELF (COTS) MANUALS	3. SUBTITLE SUPPLEMENTAL ENGRG DATA FOR PROVISIONING
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4. AUTHORITY (Data Acquisition Document No.) DI-TMSS-80527A SEE BLK 16	5. CONTRACT REFERENCE SOW Para 4.2	6. REQUIRING OFFICE PPA/TSA
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7. DD 250 REQ NO	9. DIST STATEMENT REQUIRED	10. FREQUENCY SEE BLK 16	12. DATE OF FIRST SUBMISSION SEE BLK 16	14. DISTRIBUTION		
8. APP CODE	SEE BLK 16	11. AS OF DATE	13. DATE IF SUBSEQUENT SUBM. SEE BLK 16	a. ADDRESSEE	b. COPIES	
						draft

16. REMARKS	NSWCCD-SSES 955	1	1
BLOCK 4: DI-TMSS-80527, Para 7.1 change to "This Data Item Description (DID) is applicable when existing COTS manuals are available."			

[illegible][illegible]

BLOCK 10: The manual shall be reproducible by the government without copyright for navy-wide distribution.

BLOCK 12: 210 days after date of order or 30 days after first article approval, whichever occurs last.

BLOCK 14: Regular copy shall be in the format and media provided by the contractor. Electronic copy in PDF format shall be supplied.

[illegible]

g. PREPARED BY MICHAEL GRAY, CODE 955	H. DATE 11/7/03	I. APPROVED BY	J. DATE 11/7/03
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18. ESTIMATED TOTAL PRICE	
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CONTRACT DATA REQUIREMENTS LIST (CDRL)

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the government Issuing Contracting Officer for the Contract/PR No. in Block E.

A. CONTRACT LINE ITEM NO. 0009		B. EXHIBIT A		C. CATEGORY: TDP _____ TM _____ OTHER _____	
D. SYSTEM/ITEM DDG MCS CONSOLES DISPLAY PANEL			E. CONTRACT/PR NO.		F. CONTRACTOR
1. DATA ITEM NO. A003	2. TITLE OF DATA ITEM SOFTWARE PRODUCT SPECIFICATION (SPS)			3. SUBTITLE	
4. AUTHORITY (Data Acquisition Document No.) DI-IPSC-81441			5. CONTRACT REFERENCE SEE BLK 16		6. REQUIRING OFFICE NSWCCD-SSES 955
7. DD 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION SEE BLK 16		14. DISTRIBUTION a. ADDRESSEE
8. APP CODE		11. AS OF DATE	13. DATE IF SUBSEQUENT SUBM.		
16. REMARKS BLOCK 5: Specification of Requirements 4.2 Reference IEEE 12207.0 - 5.2.7.1 NOTE: DI-IPSC-81441 requires that the executable and source code is either referenced or contained in the document. This CDRL requires that the SPS "contains" the actual executable and source code in electronic media and NOT reference them - see tailoring of DI-IPSC-81441 below: 1. SPS Block 3 - Description - delete "references" the SPS shall "contain" not "reference" the executable, source files and software support information .. 2. Paragraph 3.1 - delete "by reference to enclosed" 3. Paragraph 3.2 - delete "by reference to enclosed" An SPS for the First Article and the final software product shall be delivered in hard copy and electronic media of contractor's choosing and agreed to by the Navy. SPS for the final software product shall include information on purchasing on include any general use licenses from CDM Technologies for the elements of Intelligent Cooperative Decision Model (CDM) which are required software necessary to deploy display panel on DDG Class Ships. BLOCK 12: Delivery shall be 210 days after date of order or 30 days after First Article Approval, whichever occurs last.					
15. TOTAL ----->					
G. PREPARED BY MICHAEL GRAY, CODE 955			H. DATE 11/7/03		I. APPROVED BY
					J. DATE 11/7/03

17. PRICE GROUP

18. ESTIMATED
TOTAL PRICE

CONTRACT DATA REQUIREMENTS LIST (CDRL)

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the government Issuing Contracting Officer for the Contract/PR No. in Block E.

A. CONTRACT LINE ITEM NO.
0010

B. EXHIBIT
A

C. CATEGORY:
TDP _____ TM _____ OTHER PROVISIONING

D. SYSTEM/ITEM

E. CONTRACT/PR NO.

F. CONTRACTOR

1. DATA ITEM NO.
A004

2. TITLE OF DATA ITEM
LOGISTICS MANAGEMENT INFORMATION (LMI) SUMMARY

3. SUBTITLE
ENGRG DATA FOR PROVISIONING (EDFP) (DIGITAL)

4. AUTHORITY (Data Acquisition Document No.)
DI-ALSS-81530 SEE BLK 16

5. CONTRACT REFERENCE
SOW Para 4.3

6. REQUIRING OFFICE
PPA / TechSupp Activity (TSA)

7. DD 250 REQ
DD

9. DIST STATEMENT
REQUIRED
SEE BLK 16

10. FREQUENCY
ONE/R

11. AS OF DATE

12. DATE OF FIRST SUBMISSION
SEE BLK 16

13. DATE IF SUBSEQUENT SUBM.
SEE BLK 16

14. DISTRIBUTION

a. ADDRESSEE

b. COPIES

draft reg repr

16. REMARKS

BLOCK 4: The contractor shall provide EDFP in accordance with the LMII Summary for EDFP.

BLOCK 9: Distribution Statement A: Approved for Public Release; Distribution is Unlimited; unless proprietary or classified information applies, then distribution statement C applies, and all other requests for this data item shall be referred to Prime Provisioning Activity (PPA).

BLOCK 12: Delivery shall be 210 days after date of order or 30 days after First Article Approval, whichever occurs last. Government will provide approval or disapproval within 30 calendar days after receipt of the EDFP. Contractor shall resubmit within 30 calendar days after receipt of the Government's disapproval.

BLOCK 13: Revisions shall be submitted within 60 calendar days after approval of a change by the Government and delivered concurrent with the Design Change Notices.

BLOCK 14: One copy of drawings shall be in digital form. The acceptable formats for these engineering drawings are:

a. C4 Navy CALS variant (preferred format).

b. NAVSEA CAD-2 format.

c. Native CAD

15. TOTAL ----->

17. PRICE GROUP

18. ESTIMATED
TOTAL PRICE
\$0.00

G. PREPARED BY
MICHAEL GRAY, CODE 955

H. DATE
11/7/03

I. APPROVED BY

J. DATE
11/7/03

SUMMARY TITLE: Engineering Data For Provisioning (EDFP)**SPECIFIC INSTRUCTIONS:**

The Contractor shall identify and provide EDEP for all systems, equipment, and repair parts for all article(s) on contract. For items without a National Stock Number (NSN), recognized industry standard or government specification or standard, the following order of precedence is required for EDFP:

- a. Technical Data equivalent to approved Product Engineering Drawings as defined in MIL-DTL-3 1000
- b. Technical Data equivalent to in-process/incomplete Product Engineering Drawings as defined in MIL-DTL-3 1000
- c. Commercial drawings
- d. Commercial manuals, catalogs or catalog descriptions
- e. Sketches or photographs with a brief description of dimensional, material, mechanical, electrical or other characteristics.

EDEP shall provide for the following:

- a. Technical identification of items of maintenance support considerations
- b. Preparation of item identification for the purpose of assigning National Stock Numbers (NSNs)
- c. Review for item entry control
- d. Standardization
- e. Review for potential interchangeability and substitutability
- f. Item management coding
- g. Preparation of allowance/issue lists
- h. Source, Maintenance, and Recoverability coding

EDFP shall not be provided when the item is:

- a. Identified by a government specification or standard which completely describes the item including its material, dimensional, mechanical and electrical characteristics
- b. Identified in Defense Logistics Information as having an NSN with salient characteristics identical to the item
- c. Item is listed as a reference item (subsequent appearance of an item) on a parts list

DATA NOT IN LMI SPECIFICATION (Please provide the data product title, its definition and its format):

Engineering Data for Provisioning (EDFP) is engineering data used in the initial provisioning of support resources. EDEP is the technical data which provides definitive identification of dimensional, material, mechanical, electrical, or other characteristics adequate for provisioning of the support items of the end article(s) on contract. EDEP consists of data such as specifications, standards, drawings, photographs, sketches and descriptions, and the necessary assembly and general arrangement drawings, schematic, drawings, schematic diagrams, wiring and cable diagrams, etc., or what is sometimes referred to as form, fit, and function. EDEP format and content must be prepared in accordance with the latest industry standards and must be reproducible.

SUMMARY LAYOUT (if applicable): Government Provided Γ Contractor Provided Γ